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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,371	04/25/2000	Katsuhiko Ishii	P/1905-95	8208
7590	11/30/2004		EXAMINER	
Steve I. Weisburd Dickstein Shapiro Morin & Oshinsky LLP 1177 Avenue Of The Americas New York, NY 10036-2714			KINKEAD, ARNOLD M	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/557,371

Applicant(s)

ISHII, KATSUHIRO

Examiner

Arnold M Kinhead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE10-15-04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08-10-04 has been entered.

Claim Rejections - 35 USC § 103

I. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

II. Claims 4, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Sullivan(US 5,900,784) in view of Ueda(US 6,147,532) and further in view of Salvi et al(5,986,514) all of record.

The reference by O' Sullivan discloses a PLL frequency synthesizer(see figure 5) which outputs a signal, Fout, having a desired frequency. The PLL includes VCO(140),

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bias supply(160,170), phase detector/comparator(110) , charge pump (120) and reference oscillator F_{ref} . Note in figure 2, and col. 4, lines 56-65, that optimum current ranges are shown(please note that this describes the driving limits of the pump(see figure 3)... where the charge pump output signal (V_{in})is counteracted to prevent the operation at the limits causing problems; i.e., these optimum ranges(I_a' , I_b' , I_c) will inherently determine the predetermined limits for the pump in producing the control voltage required for maintaining the desired oscillator output stability. As the frequency range is changed and the pump output approaches the range limit.

The reference does not explicitly state that the power supply(160/170), that allows for the power supply signal to bias the appropriate (CCO) within the VCO, is modified independent of the control voltage when the control voltage(V_{in}) comes close to a limit, however, the examiner is relying on the control circuit (160) to show that independent control is achieved by way of control inputs that are independent of V_{in} . The control circuit(160) independently, supplies bias control to a particular oscillator subcircuit, so

as to produce a stable oscillator output, within an optimum range. The lock range is widened due to the different ranges that exist for operation.

The reference by O' Sullivan does not show use of an output buffer on the PLL output for isolation. This too is notoriously well known as PLL's serve as frequency synthesizers, i.e, clock circuits for timing/synchronization where loading affects the clock, for example, is typical and thus use of isolation buffers to prevent unwanted loading problems is warranted. Such exemplary use of an isolation buffer is shown in the reference to Ueda, see figure 11, and buffer 19 on the output.

Lastly, the reference does not show implementation of a PLL in a radio communication system, however, this is notoriously well known in the art, and the reference by Salvi et al is relied upon to suggest this. Please see col. 2, lines 30-50 and claim 4 with regards a wireless communication system with PLL and VCO with BIAS control.

In light of the above it would have been obvious for one of ordinary skill in the art to have added buffering on the output of the O' Sullivan PLL as exemplified by Ueda, to enhance the stability of the VCO and not allow loading of the VCO output which

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causes the output frequency to change. Also, the reference by Salvi et al suggests use in the typical wireless/radio communication system with optimal biasing requirements for a stable output as desired. The independent power supply control has been described by the examiner in light of the operational details provided by the O' Sullivan reference.

Conclusion


2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 6,150,887 shows independent biasing of a PLL(see figs. 3 and 4).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M Kinkead whose telephone number is 571-272-1763. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Arnold M Kinkead
Primary Examiner
Art Unit 2817

Arnold Kinkead
November 16, 2004